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## Logbook

Daniel Löwenborg, An Iron Age Shock Doctrine. The 536-7 AD event as a trigger of large-scale social change in the Mälaren valley area.

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## Bo Gräslund, referee

2012-12-21

Comments on Daniel Löwenborg's article "An Iron Shock Doctrine. The 536-537 AD event as a trigger of large-scale social change in the Mälaren valley area."

I very much appreciate Daniel Löwenborg's ambition to discuss the consequences of the mid 6<sup>th</sup> century crisis in perspective of other catastrophic events, such like the Black Death. No doubt such catastrophes can reshape the economic, social and cultural landscape of whole societies.

As Löwenborg notes, archaeological sources demonstrate that there already in the Roman Iron Age and the Migration period existed a social and economic elite that was in a better position than the rest of the population to take over abandoned land after the demographic crisis. I agree with much of Löwenborg's reasoning on this on this point, but will argue that the role here given to burial grounds is overestimated.

I have earlier argued that farms and hamlets as an effect of raising ground water during the climatic crisis to a remarkable extent moved to somewhat higher and drier ground in the vicinity. Löwenborg has made the interesting observation that the burial grounds in Västmanland after the mid-6<sup>th</sup> century seem to move in the opposite direction and proposes that this could be explained as a conscious action by elite groups to advertise their new land rights. But the old notion that burial grounds were located in the landscape to signal something like "keep off, this is our land", has always seemed me offensively archaeological in its simplification of prehistoric life. As yet no scholar has been able to, or has even tried to show how that could have functioned in practice in a legally satisfying way. This idea goes back to a time when burial grounds were one of very few traces of prehistoric activity that could be seen in the landscape and we still knew almost nothing about how the habitation was organized. But land property rights must have been much

better demonstrated in the landscape by the presence of the farms and hamlets as such, with their impressive buildings and with all their animals and human inhabitants in full action. No doubt other explanations of the change in location of burial ground in the Early Vendel period must be sought for, for instance a general human wish to uphold an appropriate spatial balance between the living and the dead, neither too close, nor too far away.

As far as I can see, there is only one way to claim land rights in a pre-literal society where written documents are completely absent, namely through a number of reliable witnesses representing the collective memory of land property as regulated by hereditary rules and kin relations. As a fact, such a system is well attested by early written laws both in Scandinavia and the rest of the Germanic world. That some early medieval texts refer to grave mounds in connection with the *odal* right probably only reflects attempts in early Christian society to refer back to previous generations by using an ancestral metaphor which was both tangible and emotional. Written legal documents are also conspicuously silent about how grave mounds could have been used to testify land property rights. On the contrary, Östgötalagen explicitly notes that it does not pay to refer to grave mounds in disputes about land property (Östgötalagen, Jordabalken X).

Two main factors seem to have regulated *odal* rights. Firstly, the hereditary rules for land property, which were probably well known by all members in society. Secondly, the information about kin relations, which in non-literate societies are usually known in detail also for other family groups. That means that *odal* hereditary rights were normally applied under a considerable social control. The crucial problem must instead have been that which Löwenborg is focusing on here, the claiming of land that had been abandoned several generations earlier. Given the general forest regeneration in Scandinavia and northern Europe, much of the abandoned land can't have been reoccupied until several generations after the actual crisis. The statement in early written laws like the Norwegian Gulatingslagen and Frostatingslagen that *odal* rights were not valid if unbroken family property

could be proved for 3-6 generations just can't be taken literally. According to undisputed hereditary rules, already the second generation had normal *odal* property rights. "Full" *odal* right here rather seems to express a redefinition of the concept with a view of guaranteeing a lower level of fines (G1,Fr) long after the multi-generation rule had lost its original function.

I therefore would like to put forward the hypothesis, which Löwenborg is touching at without developing it further, that the specification of 3-6 generations for *odal* rights could reflect traditions of legal conflicts on abandoned, overgrown land during the Vendel period. For making claims on such land, a number of reliable witnesses had to attest previous "ownership" within the family in question. As four to six generations could have been as much as could normally be remembered by people outside the family even in a pre-literate society, especially after a demographic crisis, that might have developed into the general norm for claiming rights to abandoned land. If so, that also means that if such land had not been legally claimed within a certain number of generations *odal* rights couldn't be referred to any longer, making abandoned land free to be occupied by anyone.

When such a system for reclaiming abandoned land with reference to earlier family generations had lost its original function, it gradually, during the Viking Age and Early Medieval time, turned into an almost mythical concept that was either forgotten or given new contents, like in early Norwegian written laws.

Bo Gräslund

## Ulf Näsman, referee

2012-01-22

Comments on “An Iron Age shock doctrine: The 536-37 event as a trigger of large-scale social change in the Mälaren valley area” by Daniel Löwenborg.

### Introduction

It is an interesting study that Daniel Löwenborg presents. He wish to explain the differences in the settled landscape in Central Sweden in the centuries before and after A.D. 500 with a single releasing event, a volcanic eruption A.D. 536. The differences in the archaeological record before and after ca. A.D. 500 has since the early 20<sup>th</sup> century been explained with various events like wars, migrations, a sudden deterioration of the climate or plagues. But a consensus has not been reached. Other more complex explanations based on human agency have been put forward. Now Löwenborg has found a ‘smoking gun’, the 536-37 event as a trigger of large-scale social change, an event that seemingly has “a considerable explanatory force” (Herschend 2009:288 and note 234 with reservations). In three earlier papers I have argued against simple, monocausal explanations of ‘the Migration period problem’ and that the ‘Dark Age’ during the 7<sup>th</sup> century for a large part represents problems in the representativity of the archaeological record (Näsman 1978; 1988; 1991). Below I will see whether his shot did hit the bull’s eye or missed the target.

Löwenborg opens his paper with an introduction to the concept ‘shock doctrine’ which is taken from the title of a controversial book by Naomi Klein. Since the book obviously inspired Löwenborg, it has been good for him “to think with”. Personally I find it rather irrelevant in this context. Based on ideas of Milton Friedman that only crises can produce real change, he presents examples of social change from the 20<sup>th</sup> century, but in my opinion these cannot serve as a reasonable analogy to the conditions of the 6<sup>th</sup> century A.D. He proceeds to the Black Death in the 14<sup>th</sup> century A.D., the significance of which is much debated but nevertheless a better analogy.

Löwenborg’s paper represents a common approach to change in prehistoric societies, the wish to find an external cause, easy to understand. When he writes that “there has often been a reluctance to explain the changes seen as result of external factors” and that there instead “has been a preference for seeing man as in control, and in charge of history” he reveals a lack of knowledge of research history. Earlier generations of archaeologists often explained great changes with immigration/emigration and/or war, implicitly or explicitly based on an assumed ultimate cause such as periods of bad weather, a rapid change of climate or the occurrence of a deadly decease. Human agency as driving force of change became a more common explanation only from the 1980s.

### The Migration Period crisis?

The problem of ‘the Migration period crisis’ is a very vast subject, comparable to ‘the Decline and fall of the Roman Empire’. It is impossible to go into details here, and to avoid repeating myself I will refer to some of my own earlier contributions to the subject, in which further references are found.

To read passages of the present text was a *déjà vu* of my days as archaeology student at the University of Uppsala in the 1960-70ies. My professor, the late Bertil Almgren, lectured with enthusiasm and from conviction about changes of climate as a general explanation of cultural change (cf. Almgren 1957:241-3), often with references to the work in the Near East by the archaeologist Hans Henning von der Osten. In a dissertation in 1968, a change of climate was

given as the main explanation of changes in both the archaeological record and in pollen analyses during the Migration period on Öland (Königsson 1968). In a classic interpretation of the same 'Migration period settlement crisis' on Öland, it was explained by war (Stenberger 1933). A similar archaeological record on Gotland was interpreted as a result of overpopulation followed by emigration and a period of war, ending in the remaining population's submission to the *Svear* in the following Vendel/Merovingian period (Nerman 1935:126-9). Another alternative explanation was presented in 1973: the plague of Justinian A.D. 541 and later. (Gräslund 1973). And now Löwenborg presents us for the assumed effects of a volcanic 'dust veil' A.D. 536.

The ideas in Löwenborg's paper are for a large part based on a recent study by Bo Gräslund (2008), unfortunately not published in English. Gräslund argues convincingly that a Norse myth, recorded in the 13<sup>th</sup> century, about a *Fimbulvinter*, three winters with almost no summers in between, was based on memories of the effects caused by a volcanic eruption in A.D. 536. Various historical and scientific sources evince that this event took place and that it had an effect on the global climate (summarised by Herschend 2009 note 234). Less convincing is the attempt to use the late myth as a source to understand what actually happened in Scandinavia almost 700 years earlier. But both Gräslund and Löwenborg use this event as a triggering explanation of the classical problem of 'the Migration period crisis'.

Results of the excavations 1964-1974 of the ring-fort Eketorps Borg on Öland, which were conducted by the late Mårten Stenberger, gave reason to scrutinise his and other ideas of a Migration period crisis (Näsman 1978). In order to get a Scandinavian perspective on the issue, I invited to a conference on Öland with 18 participants from Denmark, Finland, Norway and Sweden, the proceedings of which were published in Swedish (Näsman & Lund 1988). I see no reason to revise my conclusion from that conference: "The many papers presented at the conference demonstrate that there are many variables, which might have contributed to change during the Migration period."... "The Migration period cannot be characterised as a short acute crisis in the social development. But neither is it reasonable to dismiss the concept 'crisis' completely when trying to understand the character of the period. All speaks in favour of the Migration period as a period of fundamental social change. Certainly, some changes began already during the Late Roman Iron Age [3<sup>rd</sup>-4<sup>th</sup> centuries]; others took place in the following Vendel/Merovingian period [late 6<sup>th</sup>-8<sup>th</sup> centuries]. Thus, the crisis has to be understood as a long process in which the Migration period is a transition period between an Early Iron Age and a Late Iron Age" (my translation). Today we have a much better understanding of what happened during this long period of change from a 'Roman' Iron Age to a 'Merovingian' period but one cannot speak of a consensus. Now the event A.D. 536 has to be integrated in our understanding of this period of social change.

### **An Early and a Late Iron Age**

A division of the ca 1500 years of the Scandinavian Iron Age into an Early Iron Age and a Late Iron Age is very common in generalized reasoning. However, the dividing line is placed very differently. In Sweden the dividing line is often placed at ca A.D. 550, *i.e.* that the Migration period belongs the Early Iron Age (e.g. Herschend 2009). In Denmark, however, it is more common to put the line at around 400, thus including the Migration period in the Late Iron Age or as the first sub-period of the Germanic Iron Age (see Jensen 2004).

However, the definitions of the two period transitions, Late Roman Iron Age/Migration period and Migration period/Merovingian period are not based on assumptions of "a sudden societal, economical, ecological as well as demographical downturn" but on typological changes in the material culture, primarily from graves and hoards. A first definition of an Early and a Late Iron Age was presented already 1854 by J.J.A. Worsaae. He placed the line between a 'Roman' period and a 'Germanic' period (research history in Ørsnes 1969). Eventually the dividing line was in Danish archaeology dated to ca A.D. 400. The present dividing line between the Migration

period and the Merovingian period was first defined by Oscar Montelius (1895-1897). It was mainly based on the typochronology of female jewellery. 'The Migration period crisis' is a phenomenon of the early 20<sup>th</sup> century, based on other sources (cf. Stenberger 1933:201-12 with references to the contemporary discussion).

Sometimes the Late Roman Iron Age (3<sup>rd</sup>-4<sup>th</sup> centuries A.D.) are include in an intermediate period from the 3<sup>rd</sup> to the 8<sup>th</sup> century A.D. between an Early Iron Age and the Viking Age. For example, the period ca 200-700 A.D. was characterized by Klavs Randsborg as 'the age of warriors' (Randsborg 1990). I have myself (Näsman 2009) subdivided the development of farming during the Iron Age in four phases, the second of which covers a period from the 2<sup>nd</sup> to the 8<sup>th</sup> century A.D., thus including the Migration period, which is considered as part of a long period of transition in which the rural production was adjusted to meet new social demands (cf. Myrdal 1988). Thus recent research in Denmark does not consider the break between the Migration and the Merovingian periods as one of catastrophe-triggered change.

The problem of chronological scale is not unusual in archaeological studies. One result of the definitions of the Iron Age periods is that they appear static whereas the transitions between them are fraught with problems. As the historian Chris Wickham has written "the dating of archaeological horizons has itself often been twisted by easy assumptions" (2005:549). An illustrative example is a paper in the conference proceedings mentioned above, in which the technology of agriculture during an 'Early Iron Age' is contrasted to the technology during a 'Late Iron Age' (Myrdal 1988). It could give the impression that an agricultural revolution took place in the late Migration period. However, the differences observed are not considered to be the result of a rapid change ca A.D. 500 but are by Myrdal seen as a reflection of a long-term undulation between periods of intensification and changed organization and periods of technological development and streamlining of the labour.

The question is whether the 'dust veil' A.D. 536 and its aftermath can be related to the archaeological dating of the transition from Montelius period VI to his period VII (the Migration/Merovingian period transition).

## **Graves and chronology**

A fundamental problem in Löwenborg's paper is a very coarse chronology in which an Early Iron Age is contrasted to a Late Iron Age, linked up by a short Migration period. His presentation of the beginning and end of a number of Iron Age cemeteries in the Swedish province Västmanland (Löwenborg's fig. 2) give the impression of a drastic decline at the end of the Migration period. This may be a product of the chronological periods used. The impression "that a majority of sites were abandoned around the middle of the first millennium, around the shift from the Migration period to the Vendel period" may well be correct, but we cannot know for certain. Perhaps the decline in the number of datable graves began much earlier? Perhaps a decline began already in the Late Roman Iron Age? Perhaps the decline took place in the 5<sup>th</sup> century, not in the 6<sup>th</sup>?

In an archaeological record from Gotland the number of graves datable to the Roman Iron Age fell from 62% in the Early Roman Iron Age to 38% in the Late Roman Iron Age. Within the Late Roman Iron Age the number fell from 72% in a first phase to 28% in a second and final phase (Näsman 1988:230). Similarly, the number of cemeteries on Öland, which have datable graves, shows a maximum number in the Early Roman Iron Age, a small drop in the Late Roman Iron Age, a large drop during the Migration period and a very small number in the Merovingian period (Näsman 1994 fig. 1-5). This distribution of datable graves does not correspond to the number of sites with stray finds datable to the same Iron Age periods (cf. Åberg 1923:123-4; 147, who made the same observation). The maximum number of sites with datable stray finds is found in the Migration period and the Viking Age, followed by the Late Roman Iron Age and the Merovingian period with an equal number of sites. It seems to me hazardous to make demographic conclusions on this basis.

My conclusion was in 1994 that graves primarily are a source of burial customs, not a good source of demography. I still think so. Dated graves show how many persons that were buried in such a way that archaeologists can find and date them. They do not tell us how many people that died, nor how. Why this number often varies between periods and regions can have many different explanations. The decrease in the number of datable graves in the Late Roman Iron Age and the Migration period in parts of South Scandinavia is recently discussed by Herschend (2009), who explains the decrease with a loss of dynamics and social stagnation related to the decline and fall of Rome (p. 402-3).

It is a well-known fact that cemeteries in the region of Lake Mälaren, dated to the Early Iron Age, have a different localization than those dated to the Late Iron Age and that this is related to a settlement shift. In the first large analysis of cemeteries in the province of Uppland, local settlement continuity was emphasized despite this move at cemeteries and dwelling sites (Ambrosiani 1964:208-18). Later research supports this view on localization of cemeteries and settlement development (Göthberg 2000:229-238). A move of burials and settlements to new places took place over a long period and is not concentrated to the transition between the Migration and Merovingian periods. But in some areas a settlement regression is seemingly happened after the Migration period. This needs of course an explanation.

Löwenborg lumps together all excavated cemeteries in Västmanland with graves datable to the Roman Iron Ages into one 400 years long period. But the cemeteries with datable graves from the 400 years of the Migration and Merovingian periods are divided into two periods, ca 150 and ca 250 years long, respectively. If we fuse them into one 400 years long period under the Danish concept 'Germanic Iron Age', we will find that 18 cemeteries began in the Roman Iron Age and 20 in the Germanic Iron Age; 13 ended in the Roman Iron Age and 19 in the Germanic Iron Age; 17 cemeteries from the Roman Iron Age continued into the Germanic Iron Age and 24 cemeteries continued from the Germanic Iron Age into the Viking Age. With this exercise I wish to ask for a subdivision of the Roman Iron Age material in an early and a late period.

## War

War is an important constituent of the processes of social transformation that took place between the 3<sup>rd</sup> and the 8<sup>th</sup> century A.D., but war is left out completely by Löwenborg. The importance of war as cause of social change must not be underestimated (Näsman 1999:5f; 2006:217-21 with references). War stimulates the development of managerial and governmental institutions. War is an element in peer polity interaction. Wars created opportunities for the career of new leaders. An archaeological record of 'war indicators' in South Scandinavia indicates an increasing frequency of raids and war during the Roman Iron Age culminating in the Migration period before ca A.D. 500 (Näsman 1994 fig. 8). Few indicators date to the 6<sup>th</sup> century and the Merovingian period appears to be relatively peaceful before a new high frequency of war indicators appears again in the Viking Age. The most important material consists of offerings of spoils-of-battles found in Denmark and Sweden up to the area of Lake Mälaren. More than 50 battles dating from ca 2<sup>nd</sup> to the 5<sup>th</sup> century A.D. are recorded by such offered war equipment found at 29 sites, two of which at Lake Mälaren (Fabech 1996:137). In all 22 finds at 13 sites are dated to the Migration period before ca 500 A.D., one of which in Västmanland (Fabech 1996 fig. D; 2011:34). I have interpreted the war indicators of the Roman Iron Age and the Migration period as evidence of tribal warfare (raids and plunder) to get resources and as conquests of territories to control communication channels. Frands Herschend describes the wars in Scandinavia during the Migration period as struggles between families of the 'upper classes' to gain land and power (Herschend 2009:405).

In a recent study, Michael Olausson reviews the significance of fortifications in Sweden A.D. 400 – 1000 (2009). A period of increased building of fortifications began in the Late Roman Iron Age and lasted into the early Migration period, long before the 6<sup>th</sup> century crisis. After a use

period of a few generations, most of the forts seem to have been abandoned again around A.D. 500, well before the end of the Migration period. However, in some areas like Öland forts were in use into the 7<sup>th</sup> century or later. Some of the hilltop sites also served as elite residences, as magnate manors. Olausson suggests that they represent elite families displaying their lifestyle, a new way of life influenced by Roman and provincial Roman models.

A consideration is lacking of the Late Roman Iron Age and the Migration period wars as background of the changes during the following Merovingian period.

### **Warriors returning home**

Returning warriors from the Continental war theatre with new knowledge, experiences, and soldier's pay in gold are by Olausson supposed to have brought tension into the local communities which resulted in changes in the power structure. In his opinion the Migration period does not reflect an economic/demographic crisis but a process. In the end it resulted in the major changes of the ideological and power-political structures, which are reflected in the very different material culture of the Merovingian period. Charlotte Fabech suggests that young men returning from the wars of the 5<sup>th</sup> century came in conflict with an old tribal elite, which had based its life style on ideals of the Late Roman Iron Age (Fabech 2011:34). The old tribal elite based its power on a farming system they themselves had introduced around A.D. 200 to meet new demands, which ultimately were created by interaction with the Roman Empire (Näsman 1996).

The new warrior elite of the 5<sup>th</sup> century had served in the Continental wars and came thus under strong influence from an international martial elite dominated by Gepids and Goths, and with prominent Nomadic elements, transmitted during the short Hunnic realm. They held on to the 'Roman-Gothic' ideal so long that the Merovingian period was postponed in Scandinavia, perhaps as much as 100 years (Kristoffersen & Magnus 2010 fig. 20). In Scandinavian chronology the Migration period ends ca A.D. 550. In Continental chronology *Alte Merovingerzeit* begins already ca A.D. 450 (Rau 2010 Abb. 41). This is not only a matter of terminology; it is a matter of cultural orientation.

Obviously the new elite, the warlords, became not only the 'makers of manners' but also victors in the struggle for power. But at last they made a cultural shift towards the Merovingians. Contributing changes on the European scene were the declining strength of the Gepid and Gothic kingdoms in the early 6<sup>th</sup> century, the breakdown of the Gothic alliance after the death of king Theoderic the Great in A.D. 526, and the victories of the Merovingian king Clovis and his successors in the first half of the 6<sup>th</sup> century (Halsall 2007:284-310). Significant in this context was the Merovingian defeat of the Danes sometime between ca A.D. 515 and 525 (also Hedeager 2005:501-2). This shift is evident in the material so-called Vendel culture, which can be considered to be an *imitatio regni Francorum* (Näsman 1991:174 with references). For me it is hard to relate this fundamental shift in orientation to the aftermath of an eruption of a volcano.

The following Merovingian period reflects a fundamental social change. The warlords of the Migration period now became the landlords (cf. Herschend 2009:405). They manifested themselves in the landscapes around Lake Mälaren with new types of burials, monumental mounds and boat-graves (Ljungkvist 2008:277-8). The material culture of the cremation in the so-called Ottar's Mound in Vendel parish, Uppland, links the 'Gothic' Migration period culture to the 'Merovingian' Vendel culture. The male elite of the Merovingian period boat grave cemeteries is characterized as mounted, well-armed elite warriors. They certainly had the power to lead a reorganization of the landscape that led to new localization of settlements and cemeteries in the Merovingian discussed by Löwenborg. That some farms were deserted because of a population decline, possibly increased by the aftermath of the A.D. 536 event, can have facilitated this change.

The wealthy mounds and boat-graves represent a monumentalisation of the landscape. However, this is lacking in large parts of South Scandinavia where rich or monumental graves are very rare in this period, except on Bornholm. The rich burial customs on Bornholm in the early Merovingian period is explained by uncertain social positions of the leading families and by their competition in a more centralized social system (Jørgensen 1991:122-3). This can also be the case in the provinces at Lake Mälaren when the ‘warlords’ fought to establish themselves as ‘landlords’. Wickham (2005:373) rejects the idea of aristocratic landlords in Denmark earlier than the 11<sup>th</sup> century. Indeed, it is difficult without written sources to know whether the elite based themselves on a control over land or on power over people.

## Property rights

To discuss property rights during a prehistoric Scandinavian Iron Age is a challenge due to the lack of written records. It is praiseworthy that Löwenborg dares to address the issue (cf. the discussion in an unfortunately unpublished PhD-thesis, Holst 2006:197-209). In Denmark excavated settlements with contemporary farms indicate that at the beginning of the Iron Age land was in possession of the community (Näsman 2009; a different view emphasising aristocratic control already in the Roman Iron Age is based on a very different Norwegian landscape, see Skre 1999; 2001). This is also indicated by several place-names ending in *-inge* or *-hem*, as Löwenborg also points out. Land was probably distributed between the farms on the basis of options to use their fair share of pasturage, land for fodder production, and arable. Already from the end of the Pre-Roman Iron Age and the Early Roman Iron Age an increasing frequency of individually fenced farms may indicate that the rights to dispose over a share of the common land was now more closely related to the individual farm. This also had the result that social inequality in the settlements increased, as pointed out by Mads Holst (*op.cit.*).

The individually fenced farms became more common and more regulated from the Late Roman Iron Age what supports the assumption that each farm had its own individually fenced part of a common arable and meadow area. Perhaps this was organized as an infield as indicated by contemporary field wall systems preserved in parts of Norway and Sweden. But so far the individual farm families had only an option to dispose over land that still was in the possession of the community. But perhaps, according to the evidence of place-names, individual possession of farms and land became possible already in the Late Roman Iron Age. South Scandinavian place names ending in *-lev* and *-sted* (Denmark) or *-löv*/*-löv* and *-sta(d)* (Sweden) have often a personal (male) name as first element. The ending *-lev*/*-löv* means heritage or hereditary estate. This means that the place-names refer to a person (male) who left an estate to the next generation. The name type *-lev*/*-löv* is dated to the Migration period or earlier; the *-sted*/*-sta(d)* type, the meaning of which is contested, was in use during most of the Iron Age. Since many of these settlements probably were hamlets or villages this indicates that powerful families could gather land run by subordinate farms. Communal possession was eventually replaced by individual ownership. But this was a slow process. Still in the written laws of the High Middle Ages ambiguities indicate that individually owned land was an unaccustomed phenomenon.

Thus it eventually became possible – long before A.D. 536 – for the powerful to gather much land without living next to it (Herschend 2009:393-5). Land was now related to economic and political power, not only to subsistence. This is a long-term change of social space and social order, and as Herschend concludes it reveals a system that was dynamic, competitive, and stratifying. Probably the volcanic eruption A.D. 536 and its effects facilitated for some to gather more land as suggested by Löwenborg, but it did not trigger a process that in fact had begun long before.

## Deserted settlements

Löwenborg does the correct observation that many settlements shifted location around the middle of the first millennium A.D. But this is not surprising since settlements regularly moved short distances in the landscape until the High Middle Ages when most of the historic hamlets and villages found their present location. His statement that very few sites were continuously used into the Vendel/Merovingian period throughout Sweden is not accurate. In a study of Iron Age settlement on Öland, Jan Henrik Fallgren listed excavated houses at 20 different sites. His dates are based on artefacts and <sup>14</sup>C-datings and summarized in a table (Fallgren 2006:220f.), condensed below:

Earliest and Last date in a house	Number
Not dated	7 sites
Late Roman Iron Age	1 site
Late Roman Iron Age – Migration period	2 sites
Migration period	1 site
Pre-Roman Iron Age – Merovingian period	1 site
Early Roman Iron Age – Migration/Merovingian period	1 site
Late Roman Iron Age – Merovingian period	3 sites
Migration period – Merovingian period	4 sites
Sum	20 sites

Thus houses still used in the Merovingian period are found at 9 of 20 sites! Add houses in the ring-forts of which many have given finds and <sup>14</sup>C-datings from the Merovingian period. The desertion of the houses thus covers a long period, roughly from the 3<sup>rd</sup> to the 7<sup>th</sup> century A.D. In the Late Roman Iron Age one site seems to end, in the Migration period three sites, and in the first half of the Merovingian period nine sites. Add the many houses excavated in the ring-forts. In the 7<sup>th</sup> century probably all 53 houses in Eketorp ring-fort were still in use, 47 as dwellings (Herschend 2009 fig. 93B). Thus a considerable part of the population seems to have survived the ‘Migration period crisis’ including the volcanic eruption in A.D. 536.

On Gotland excavated Iron Age houses covered the same time span, but artefacts from the Migration period dominate among the last small finds (Näsman 1978:348 with references). After a comprehensive analysis of the cultural landscape on Gotland, Dan Carlsson concluded that a reduction in the number of farms can be observed during the period late Migration period – early Merovingian period (ca 6<sup>th</sup>-7<sup>th</sup> centuries) (Carlsson 1979:125). He estimates this reduction to ca 10%. Since it mainly was the smallest and poorest farms that were deserted, this is not the demographic catastrophe surmised by earlier scholars, but certainly serious enough. Carlsson does not discuss the cause of the changing settlement pattern during the Merovingian period but refers in general to the discussion about the desertion during the 14 century.

In a recent summary of settlement research in Uppland, Hans Göthberg (2007:439-45) discussed the question of continuity from the Early to the Late Iron Age at the transition from the Migration to the Merovingian period. He concludes that depending on your point of view it is possible to argue for continuity as well as discontinuity. He presents 24 cases where continuity can be suggested. The decline in the number of farms began already at the end of the Late Roman Iron Age. Other farms were deserted after the Migration period. But the settlement area as such remained continuously settled. This means either a population decrease or a contraction to fewer farms.

A map of Iron Age settlements at Österby, Läby parish, presents an illustrative example of both settlement continuity and desertion (Göthberg 2007 fig. 38). The situation resembles a similar situation in some Scanian and Danish settlement areas (Berglund *et al.* 1991:430; Carlie 2005:23-4; Björhem & Skoglund 2009:63; Christensen & Tornbjerg 2009:76-79). In the Pre-Roman and Early Roman Iron Ages the settlement pattern was very dense with small settlements

distributed at many sites in the landscape. But after ca 200 A.D. a change had taken place after which it seems that the population was concentrated at fewer and larger settlements. The contraction has been explained by an agrarian reform. This was made necessary by a crises caused by internal factors (Hedeager 1988:174), or was part of a broader European economic crisis caused by a break-down of the Roman economy in the 3<sup>rd</sup> century (Hedeager 2002:259). I have myself suggested that the change was caused by a need to produce a surplus in both goods and men to meet a growing demand caused by the barbaric-Roman interaction after the Marcomannic wars A.D. 166-180 (Näsman 1991:168). Growing inequality in the social structure is suggested by Christensen & Tornbjerg (*op.cit.*82). Be that as it may. The settlement change in Denmark ca A.D. 200 demonstrates that a natural disaster is not necessary to explain settlement change.

In Scania rescue excavations demonstrate a large number of post-built houses from the Pre-Roman and Roman Iron Ages (Björhem *et al.* 2012). But the number of houses from the Migration period until the High Middle Ages is much lower. In contrast, metal detecting usually result in very few artefacts from the Early Iron Age but many from the end of the Roman Iron Age to the Viking Age and later. This discrepancy is also observed in Denmark (Christensen & Tornbjerg 2009:30). It is difficult to explain the discrepancy between the two different source materials, but it emphasizes how source dependent archaeological interpretation is. Plausibly the combined effects of an increasing supply of metals in the Late Iron Age and a change in building methods can explain the observations.

Obviously changes in settlement distribution and density are a process over long time and with considerable regional variation as also noted by Löwenborg. The aftermath of the A.D. 536 event may have contributed, but the effect seems to have been of greater or lesser consequences in different regions, perhaps it hit harder in the Lake Mälaren area as suggested by Löwenborg. But why there and not so hard in other areas (if at all) is not yet explained satisfactory. Perhaps the social robustness to cope with stress varied?

## **Pollen and area cover**

New studies in a recent landscape project in Denmark emphasize the very complex analytical process from the counting of pollen to an interpretation of the vegetation cover in the area surrounding of the site of the pollen sample (Odgaard & Nielsen 2009). It is emphasized that local pollen analyses reflect the vegetation near and along the shore of the lake in question, and consequently changes in very local land-use can have considerable effect on the vegetation cover. Nine lakes were chosen for pollen sampling, representing three Danish landscape types: forested, arable plain, and heath areas, respectively. Nevertheless, the analyses of the nine samples show common characteristics that make general estimates possible (*op.cit.* figs 35 & 45).

But in the details a considerable variation is found that reflect different land use along the shores of the lakes (*op.cit.* figs. 36-44). In the pollen samples from sites characterized by either forest or open arable plain the analyses demonstrate a more or less marked increase in tree pollen in the period 600-800 (more forest), probably mainly because some pastures and areas for fodder production had been left in the neighbourhood of the lakes in question. The cultivation of cereals continued, however, and at some lakes it increased, at others it decreased. In one case, Gundsømagle in Zealand, there is in a very open plain landscape no indication at all of a decreasing human impact after ca AD. 400. In the heath landscapes of West Jutland analyses demonstrate a continuous slow increase from the Bronze Age until recently of areas covered by heather and a corresponding decrease in forest. This is an effect of a continued but increasingly extensive land-use, mainly grazing. However, in the same long period the cultivation of cereals increased continuously as well.

Danish analyses show that areas with long continuous land-use have little forest today, while areas in which the intensity of land-use has varied over time or been discontinued still have some

forest. This indicate of course that central areas were in continuous use while it was the peripheries that in periods were hit by decreasing human impact, more or less strong (Aaby 1993).

Löwenborg quotes papers on pollen analyses made in Uppland. Håkan Ranheden is very careful and has a lot of reservations for the uncertainties in both dating and interpretation of the data about the land cover along the E4 in Uppland (Ranheden 2007:100-117). According to weak indication in pollen analyses the use of the landscape decreased during the transition between the Early and Late Iron Age. According to macro fossil analyses of samples from different settlements it can be observed a probable abandonment of several settlements towards the beginning of the Late Iron Age, but there are also indications that some of the deserted settlements simply had moved. Pollen and macro fossil analyses together may indicate that possible abandonment of settlements and cultivable land in part was a local phenomenon. Löwenborg notes that settlements in the central parts of Uppland seem to have been used continuously throughout the period, while sites in the periphery often were been abandoned in the Late Iron Age. A new expansion started already in the Viking Age in the central areas, whereas expansion into the periphery did not take place until the 12-13<sup>th</sup> centuries.

The difficulty to interpret and correlate the archaeological and the scientific record is clearly expressed in the conclusion chapter in the publication of the large so-called Ystad-project (Berglund *et al.* 1991). An illustration (*op. cit.* Fig. 6.1:1) is obviously a compromise between different opinions among the five authors. Periods of settlement change are dated to the transition from the Late Roman Iron Age to the Migration period and the end of the Viking Age. A change of land-use led to a reforestation in “at least” some areas around A.D. 400–500, but the relation between arable and woodland during the Migration period is only marked with a question mark, not as a major shift.

### Concluding remarks

To end these comments I will leave the problems of understanding the causes and effects of the regional settlement variation in the Scandinavian archaeological record. Since I doubt the ‘shock doctrine’ I will refrain from commenting Löwenborg’s many interesting interpretations of his observations in the archaeological record of the Lake Mälaren area. Instead I will look at the wider European scene to see how scholars have used the A.D. 536 event, if at all.

Herwig Wolfram’s detailed survey of the decline and fall of the Gothic realm in Italy A.D. 526–552 gives sufficient explanation of the Italian economic and demographic collapse in the 6<sup>th</sup> century (1988:332-362). As far as I can see, he mentions the year 536 only in connection with the end of the royal Amal line of descent when Theodahad died, the second Amal king to succeed Theoderic the Great. The effects of the A.D. 536 event have of course contributed to the devastation caused by warfare and the break-down of the Late Roman economic system described by Wolfram. But had much changed in Italy, had it not happened?

In a volume on the age of emperor Justinian, Peregrine Horden gives a survey of the debate between ‘catastrophe believers’ and ‘catastrophe deniers’ on the role of ‘the plague of Justinian’. In this context he also mentions the A.D. 536 event (2005:152-157) and concludes that “the ecological connections between meteorology and history on this scale remain indistinct.” Concerning the demographic decline caused by the early medieval pandemic (EMP), he concludes that it was only one of several ingredients of the changes in the age of Justinian and that it cannot be given a leading role in the economic *translatio imperii*.

Plague, population decline, climatic changes as well as the ‘dust veil’ are phenomena indexed in the first volume of The New Cambridge Medieval History. When discussing the impact of the ‘dust veil’ phenomenon in Constantinople, Andrew Louth (2005:109-111) also mentions other events, earthquakes, droughts, and the appalling Nika riot, which took place between A.D. 526 and 532, all preceding the ‘dust veil’ phenomenon, which in it turn was followed in years to come

by other natural as well as ‘man-made’ disasters. Consequently it is problematic to blame too much of Justinian’s misfortunes on the A.D. 536 event.

In the opinion of Stéphane Lebecq (2005:645-59) the climate improved again in the 7<sup>th</sup> century and the plague left north-west Europe. He also maintains that the plague was less lethal in the north than in southern Europe. The demographic recovery of north-western Europe cannot, however, be explained only by better climate. An agricultural growth was organized by a more powerful aristocracy, the period was relatively peaceful, and an increasing trade was based on new markets, towns, churches, monasteries and sea ports.

Helena Hamerow emphasizes (2005:263-88) that the population in England declined substantially from the later 4<sup>th</sup> century into the early 5<sup>th</sup> century, but also that the open landscape of the Roman period was maintained into the late Saxon period. Reafforestation in the 5<sup>th</sup> and 6<sup>th</sup> centuries was not on a large scale. Population gradually increased again from the later 6<sup>th</sup> century. The emergence of a new elite led in the 7<sup>th</sup> century to competition to obtain land that was “not merely an economic resource but a social one.” I guess that both Löwenborg and I can see in her review of the Anglo-Saxon trajectory an analogous development to the transition from the Migration period to the Merovingian period in Scandinavia.

Surprisingly, Lotte Hedeager does hardly discuss economy or settlement development in her contribution about Scandinavia (2005). Instead she discusses myths and animal art as expressions of the political ideology of a warrior-elite and take a high degree of ideological continuity for granted from the 5<sup>th</sup> century to the Old Norse written sources of the High Middle Ages. The myth of the *Fimbulvinter* does not figure at all when she in a section about the period A.D. 500–700 writes that the land was reorganized, production intensified, a hierarchical settlement structure developed, etc.

In his imposing book “Framing the Early Middle Ages” Chris Wickham has of course to make up his mind about the ‘Great Disaster’ theories of the 6<sup>th</sup> century (2005:548-549)<sup>1</sup>. He establishes the fact that the population declined, but points out that the decline began already in the 5<sup>th</sup> century. He rejects “a uniform pattern of demographic decline” with arguments that “also works against the latest Great Disaster theory ... the Dust Veil of 536”. Desertion of settlements took place but mainly in poorer land and settlements often seem to have shifted to better land. Sometimes deserted land was not left unused but instead extensively used from a distance (the arguments are found in his chapter 8).

Summarizing the book in chapter 12, Wickham discerns seven general trends in the many changes between A.D. 400 and 800 (2005:824-831). His conclusion is that there were no single prime movers. This is what I, another ‘catastrophe denier’, also reject with other words as monocausal explanations. I have not rejected that the population declined also in Scandinavia. But the decline had several causes and their effects varied regionally. In the summary of the above-mentioned conference proceedings (1988:247-250), I wrote “Still monocausal explanations are sometimes presented, but they must now submit to more complex models that from local, as well as regional and superregional perspectives consider all aspects of the problem” (my translation). The smoking gun has spoken. It delivered a live shot but as far as I can judge, it missed the bull’s eye and hit only the periphery of the target. It has for a long time “been no need to argue either for a catastrophe or a change in human life” (Herschend 2009: 325 note 234).

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<sup>1</sup> This is not the place to discuss Wickham’s ideas about a peasant mode model and its relevance in a Scandinavian context but I think his book deserves a profound Scandinavian review (see for instance his discussion about Denmark pp. 364-379; 816-823).

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## Daniel Löwenborg: Comments to the referees

I am very grateful for the above comments by the reviewers, which provide important insights into both the topic for the paper and in regard to research questions of this nature more generally. Both of the reviewers raise issues that will contribute significantly to the continued research on the issues addressed in my article. As both commentaries make frequent and direct references to the original text, I have made my additions in the text in the form of footnotes, referring back to the reviewers' comments.

A few general reflections from my side; since the issue at hand is so broad in nature, it will be necessary to undertake extensive additional research into the circumstances surrounding social development during the first millennium AD. These should ideally be from a wide range of angles and combine both highly detailed analyses of specific materials and phenomena, as well as a broad overview. One major obstacle to the advancement of this work, and many other archaeological investigations, is the difficulty involved in accessing the information produced in archaeological excavations in Sweden today. Although a large number of excavations are carried out, information regarding their outcome is usually only presented in the form of a report of some description, most of which do not even reach university libraries. This limits the opportunity for further analysis, both in terms of collecting extensive information from different projects, and for reinterpretation and evaluation of the excavator's interpretation of a site. Extensive syntheses of the archaeological knowledge of regions are rare nowadays, since it is just too cumbersome to collect and analyse archaeological reports using present methods. The dominating theoretical orientation of academic research also focuses on other topics at present. The sites that do receive attention from researchers are usually those that distinguish themselves in some way. Together, this leaves us with a situation where general development of ordinary settlements in the landscape, and societal development as a whole, cannot be analysed in a structured manner that provides us with a continuously updated accumulation of knowledge based on the results of excavations.

As archaeological excavations are routinely documented digitally in Sweden today, much would be gained if it were possible to collect and reuse all this information for research (Löwenborg 2010, 11). As trends are now moving in this direction, there are good prospects for the kind of large syntheses that will afford the correlation of cultural change with other information, providing a better ground for interpretations of cause and effect. As more detailed climatic data is available, providing a better understanding of climatic variations in high chronological resolution, it will be increasingly rewarding to compare social development with climate when we can produce robust syntheses of the archaeological knowledge using digital archives.

A theoretical framework that will be of use for reinventing the understanding of crises in both the long and the short timeframe is *resilience theory* (Gunderson & Holling 2002, Redman 2005). Resilience theory poses questions regarding the ways in which cultural development is influenced through numerous interlinked small and large-scale events that could turn into a crisis if boundaries of the resilience in a system are exceeded. One thing that happens in such a *release phase* is that the system becomes less connected. This poses new opportunities for expansion as the previous (conserving) phase is reorganised. Nothing is ever entirely new, however, and some aspects of a previous system usually remain and are incorporated as a new structure is formed. Without going into details of the principles of resilience theory, it seems clear that the models of understanding a crisis as more than simply a decreasing number of sites will contribute to the archaeological interpretations of social development. There will thus be many reasons to return to the events in the 6th century in future archaeological research.

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